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Pilot Study of AIDS Risk in the General Population

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This research was supported by Biomedical Research Support Grant No. 0959-2450-78 to Dr. Burke and Dr. Jeffery from the University of Minnesota School of Public Health.

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Synopsis

This study evaluated a methodology for obtaining information on the prevalence of risk behaviors for human immunodeficiency virus infection (HIV) in the general population. From two census tracts

in an upper midwestern urban community, 334 households were identified at random. One adult between the ages of 18 and 55 years in each household was asked to complete a confidential questionnaire about knowledge and attitudes toward acquired immunodeficiency syndrome (AIDS) and risk behaviors for HIV infection. Half the responders were also asked to provide a blood sample for HIV serotesting.

Response rates to the behavior questionnaire were high (85 to 90 percent). However, only 72 percent of those asked to provide a blood sample agreed to do so.

Survey results showed low rates of HIV risk behavior in this population sample. The median number of lifetime sexual partners was five for men and three for women, and most reported contacts exclusively with persons of the opposite sex. Eleven percent of the men and 5 percent of the women reported having had sexual partners of the same sex during their lifetime. Seven percent of men and 3 percent of women reported same sex partners in the last 12 months. Very few reported extremely high-risk behaviors (that is, only one man reported multiple sexual partners with anal intercourse in the previous year). About one in five survey respondents reported having changed his or

her behavior because of the AIDS epidemic, usually by being more selective about and reducing the number of sexual partners. Success of the method-

ology employed in this survey gives reason for optimism that population-based surveys of behavioral risks for HIV infection are feasible.

ATTEMPTS TO PREDICT the future course of the acquired immunodeficiency syndrome (AIDS) epidemic in the United States and to develop public health strategies to address the problem have raised many questions. Although the agent responsible for human immunodeficiency virus (HIV) infection is known, as are the primary modes of transmission, a number of factors important to modeling disease transmission accurately in the general population remain relatively understudied (1-5). Unanswered questions include the frequency with which members of various population subgroups engage in high-risk behaviors, the number of partners involved, the rate of acquisition of new partners, the frequency distribution of high-risk contacts among partners, and the extent of partnership overlap between subgroups with low versus high infection rates (6,7). To date, HIV infection in the United States has been transmitted primarily by sexual behaviors between men, needle sharing by intravenous (IV) drug users, and through contaminated blood products. Experience in other populations, however, especially in Africa and the Caribbean, strongly suggests that heterosexual behaviors may also play an important role in expanding the epidemic to the general population (8,9).

Research on the prevalence of risk behaviors for HIV infection has concentrated primarily in high-risk groups such as male homosexuals, prostitutes, and IV drug abusers (10-14). Given the possibility that HIV infection may eventually become manifest in the general population, it seems prudent to collect information about the prevalence and distribution of risk behaviors in groups that are now "low risk" as well. Research is needed to determine the best methods for obtaining information on risk behaviors in the general population. Methods that ensure high participation rates and that can be applied to both the higher and lower risk populations are needed to collect data that can be the basis of appropriate public health policies for AIDS prevention.

The purpose of the research that we describe was to evaluate the feasibility of a general population survey of risk behaviors and of HIV serotesting. A sample of people in a midwestern urban community was asked to complete an HIV risk behavior survey, and half of them were asked to provide a

blood sample for serotesting. The intent of the survey was to determine the feasibility of a general population survey to collect sensitive behavioral information related to HIV transmission, to assess the effects of a request for serotesting on the survey's response rates, and to obtain preliminary information on the prevalence of various risk behaviors in the population at large.

Methods

The survey was conducted in the St. Paul-Minneapolis metropolitan area in the spring and summer of 1988. This community has a total population of approximately 2,250,000 people. The majority are of Northern European extraction. The Twin Cities area is at present in the mid-range of AIDS disease rates among U.S. cities. The vast majority of AIDS cases in the community are among homosexual males (15).

Surveys were conducted in two census tracts of approximately 1,000 households each. The two were selected nonrandomly from a total of 704 census tracts covering the entire metropolitan area. The selected tracts were intended to represent (a) an upper middle class area and (b) working class area in reasonable proximity to the University of Minnesota.

Households were the unit of selection for the survey. Households were selected randomly from each census tract and assigned in groups of 25 to a two-person survey interview team. Households were first sent a letter indicating that a survey relating to AIDS risk was taking place in their neighborhood and that their home had been selected to participate. Survey interviewers next visited the house in person and once contact was made, enumerated all the adults in the household between ages 18 and 55. The adult with the most recent birth date was selected as the survey respondent. Persons identified as respondents were either approached at the time of the initial household contact or later at their convenience. Attempts to schedule interviews with respondents who were not available at the initial contact continued until the person completed the questionnaire, refused, or at least 10 unsuccessful attempts in person and by phone had been made to reach them. No incentives were offered for

participation. Addresses with vacant residences and those with no age eligible respondents were replaced in the sample by another randomly selected household.

The survey instrument was adapted from the questionnaire used in the Health Interview Survey by investigators in the Population AIDS Risk Study. It was designed to be self-administered. In this survey, the interviewer gave the questionnaire to the respondents in their home and asked them to complete it confidentially in the interviewer's presence. The survey assessed knowledge about how the virus is spread, attitudes about AIDS, fears about getting AIDS, methods for preventing HIV transmission, history of HIV serotesting, history of venereal disease, use of illicit IV drugs, lifetime and current sexual activity—including numbers of partners, their sex, and types of sexual contacts, prostitution and rape, and beliefs about the sexual activity of current, steady sex partners.

Half the survey respondents, chosen at random, were asked to provide a blood sample for serotesting. Blood was obtained by finger stick and collected on an absorbent blotter. Samples were sent to the Minneapolis Memorial Blood Bank for testing, where duplicate ELISA and Western blot techniques were used according to Center for Disease Control (CDC) protocol. A Minnesota statute requires notification to the State health department of HIV positive persons except in the case of certain studies sponsored by the health department itself. Thus, survey respondents from whom blood samples were requested were told that positive results would be reported to the State health department. All persons were assured that data from their behavior questionnaires would remain strictly confidential. Survey respondents were given a phone number that they could call to obtain the results of their HIV test.

Results

A total of 334 households were included in the survey. One hundred and eighty female and 154 male respondents were enumerated. Overall survey completion rates were 84.4 percent of men and 91.1 percent of women. Approximately 10 percent of men and 6 percent of women refused to be surveyed, and 5 percent of men and 3 percent of women could not be contacted after repeated attempts. There was no difference in survey response rates between the two census tracts (88 percent in one tract and 86 percent in the other). Completion of the risk behavior questionnaire was

Table 1. Percentage distribution of survey respondents by education, ethnicity, and marital status

Characteristic	Men (N = 130)	Women (N = 164)
Mean age (years)	35.6	36.4
Education (percent):		
12 years or less	15	18
Some college	40	38
At least a college degree ..	45	44
Ethnicity (percent):		
White	98	93
Other	2	7
Marital status (percent):		
Never married	36	22
Married	49	55
Previously married	15	23

Table 2. Choice of sexual partners during a lifetime and in the previous 12 months of 130 men and 164 women

Respondents' choice	Lifetime		12 months	
	Number	Percent	Number	Percent
<i>Men</i>				
Men only	3	2	6	5
Women only	106	81	95	73
Both men and women	11	9	2	2
No sexual partners	10	8	27	21
<i>Women</i>				
Men only	148	90	131	80
Women only	0	0	1	1
Both men and women	8	5	3	2
No sexual partners	8	5	29	18

not affected by the request for HIV serotesting (87 percent without and 85 percent with serotesting). However, 13 women and 8 men refused to give a blood sample so that the response rate for blood samples only was 72 percent. Selected demographic characteristics of survey respondents are shown in table 1. In comparison to the general population of this community, they were more highly educated and more likely to be white.

Table 2 shows the reported sexual activity of survey respondents by sex of their partners. Sexual activity was defined as oral, anal, or vaginal intercourse. Separate prevalence estimates were computed for total lifetime and for the previous 12 months. Overall, 92 percent of men and 95 percent of women reported a history of sexual activity. Eighty-one percent of men and 90 percent of women reported sexual experience exclusively with the opposite sex, while 11 percent of men and 5 percent of women reported same-sex contacts. In the last 12 months, 79 percent of men and 82 percent of women reported sexual activity, 73

Table 3. Number of sexual partners during lifetime and in the last 12 months

Number of partners	Men (N = 130)		Women (N = 184)	
	Lifetime	12 months	Lifetime	12 months
Men's partners:				
0	118	122	9	30
1	2	4	41	122
2	1	0	21	7
3	2	0	23	4
4	1	1	15	1
5	1	1	11	0
6	1	0	10	0
7	0	0	2	0
8	1	0	1	0
9	0	0	0	0
10	2	1	9	0
More than 10	1	1	22	0
Women's partners:				
0	15	33	156	160
1	21	79	1	1
2	8	7	3	2
3	10	3	0	1
4	7	4	0	0
5	17	2	2	0
6	6	2	1	0
7	5	0	0	0
8	2	0	0	0
9	0	0	0	0
10	14	0	0	0
More than 10	25	0	1	0

percent of men and 80 percent of women reported exclusively opposite sex contacts, 5 percent of men and 1 percent of women reported exclusively same-sex contacts, and 2 percent of both men and women reported having had sex with both men and women.

Table 3 shows frequency distributions for reported number of sexual partners by sex. The median number of reported lifetime sexual partners in this sample was five for men and three for women. Approximately 30 percent of men and 20 percent of women reported having 10 or more partners during their lifetime. In the last 12 months, the vast majority of both men and women reported monogamous relationships or no sexual activity. Approximately 17 percent of men and 9 percent of women reported more than one sexual partner in the last year.

Specific sexual practices assessed in this survey included oral, anal, and vaginal intercourse and the use of condoms and spermicidal agents. Although the sample size is limiting, it is noteworthy that only 25 percent of the men who reported having male sexual partners in the last year also reported anal intercourse. The same 25 percent also reported at least occasional condom use. Among those with

opposite sex partners, about a third of men and 20 percent of women reported using condoms, or spermicidal agents, or both, at least occasionally.

About one in five persons in this survey reported being somewhat or very concerned about being infected by the HIV. Twenty-five percent of men and 19 percent of women reported having changed their sexual practices because of the AIDS epidemic. Most commonly reported changes were having fewer partners, selecting partners more carefully, and using condoms. Celibacy was a rarely reported behavior change.

Twenty-two percent of men and 17 percent of women reported that they had been previously tested for infection. Roughly half of these tests were because of blood donation. The second most common reason was wanting to know. None of the blood samples tested in this study were antibody positive.

The median age of first sexual experience reported by this group was 19 years for both men and women. The median frequency of current sexual activity among those with steady sex partners was five per month for men and seven per month for women. Two men and four women (2 percent) reported a history of IV drug use with shared needles. One woman reported needle sharing in the last year. Only one man in this sample reported having had sex with a prostitute in the last year. Extremely high-risk sexual behavior (that is, anal intercourse with more than one sexual partner in the last year) was reported by one man.

Discussion

The primary objectives of this study were to examine the feasibility of HIV serotesting and of surveys for AIDS risk behaviors in the general population. The feasibility of risk behavior surveys was demonstrated. The 85- to 90-percent response rates obtained in this survey were comparable to response rates obtained in the same geographic area to cardiovascular risk factor surveys that are much less sensitive in content. It is possible that some survey nonrespondents were at high risk. It is also possible that similar survey methods would not be as effective in other areas, such as the inner city. Nevertheless, it is believed that this methodology would be applicable to a large segment of the population for whom information about AIDS risk behavior is generally lacking.

The methodology employed in this study to obtain blood samples for HIV serotesting was not

effective in generating the high response rates desired. Fifteen percent of respondents who were willing to complete the behavioral survey refused to provide a blood sample. A majority of refusers (62 percent) were women. Successful population surveys of HIV seroprevalence may require additional inducements to provide blood and greater assurances of anonymity than were possible in this pilot study.

The survey results we have presented portray a population at low risk for HIV infection. High-risk activities such as multiple male homosexual encounters, sharing IV needles, and sex with prostitutes were rarely reported, and the extent of overlap between those choosing same sex versus those choosing opposite sex partners appears small. Sweeping generalizations from these data, however, are not warranted. The sample was not representative of the whole population, and the sample size was too small to examine whether there may be concentrations of high-risk behaviors in subpopulations defined by age, social class, marital status, and so on.

Additional research on the distribution of risk behaviors for HIV infection in the general population is needed. The results of this pilot study give reason for optimism that a broader survey could be successfully carried out.

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